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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,694	09/23/2003	Anthony Ciancio	SC12836ZP	2205

23125 7590 11/18/2005

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EXAMINER	
MANDALA, VICTOR A	
ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 11/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,694	CIANCIO ET AL	
	Examiner	Art Unit	
	Victor A. Mandala Jr.	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11 and 13-19* is/are allowed.

6)☒ Claim(s) *1,2,4-6,8,9 and 20* is/are rejected.

7)☒ Claim(s) *3,7,and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4-6, 8, 9, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,821,839 Chung.

1. Referring to claim 1, a semiconductor device comprising: a semiconductor substrate, (Figure 2D #21), a first electrode, (Figure 2D #23A), formed over the semiconductor substrate, (Figure 2D #21); a first conductive smoothing layer, (Figure 2D #24 and Col. 2 Lines 59-63), formed over the first electrode, (Figure 2D #23A), wherein the first conductive smoothing layer, (Figure 2D #24), has a surface roughness less than that of the first electrode, (Figure 2D #23A); a dielectric layer, (Figure 2D #25), formed on the first conductive smoothing layer, (Figure 2D #24); and a second electrode, (Figure 2D #27), formed over the dielectric layer, (Figure 2D #25).

2. Referring to claim 2, a semiconductor device, further comprising: a second conductive smoothing layer, (Figure 2D #26 Col. 32-34), formed between the dielectric layer, (Figure 2D #25) and the second electrode, (Figure 2D #27), wherein the second conductive smoothing layer, (Figure 2D #26), has a roughness less than that of the second electrode, (Figure 2D #27).

3. Referring to claim 4, semiconductor device, wherein the first electrode, (Figure 2D #23A), comprises a first layer comprising a metal and a second layer comprising a refractory nitride, (Figure 2D #24), and the second electrode comprises a metal, (Figure 2D #27).

4. Referring to claim 5, a semiconductor device, wherein the first electrode, (Figure 2D #23A), and the second electrode, (Figure 2D #27), comprise a refractory nitride.

5. Referring to claim 6, a semiconductor device, wherein the refractory nitride comprises a material selected from the group consisting of titanium nitride and tantalum nitride, (Col. 2 Lines 59-63).

6. Referring to claim 8, a semiconductor device, wherein the dielectric layer comprises a high dielectric constant material, (Col. 2 Line 66).

7. Referring to claim 9, a semiconductor device, wherein the first electrode, the first conductive smoothing layer, the dielectric layer and the second electrode are part of a metal-insulator-metal (MIM) capacitor, (Col. 2 Line 46).

8. Referring to claim 20, a method for forming semiconductor device comprising: providing a semiconductor substrate, (Figure 2D #21); forming a first electrode, (Figure 2D #23A), formed over the semiconductor substrate, (Figure 2D #21); forming a first conductive smoothing layer, (Figure 2D #24), formed over the first electrode, (Figure 2D #23A), wherein the first smoothing layer, (Figure 2D #24 and Col. 2 Lines 59-63), has a surface roughness less than that of the first electrode, (Figure 2D #23A); forming a dielectric layer, (Figure 2D #25), formed on the first smoothing layer, (Figure 2D #24); and forming a second electrode, (Figure 2D #27), formed over the dielectric layer, (Figure 2D #25).

Allowable Subject Matter

9. Claims 3, 7, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 11 and 13-19 are allowed.

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ
11/13/05